

Bluebee Rolls Out Cloud-based, High-Powered Genomic Analysis Services in Europe

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NEW YORK (GenomeWeb) – With a management team derived from disparate parts of the IT field, Dutch informatics firm Bluebee may not look like the typical genome analytics vendor, but it has a lofty vision for a fragmented market, promising speed and scale for high-volume sequencing clients.

"We think we can do it faster and cheaper, and we can stick to the gold standard algorithms," for genomic analysis, Bluebee Chief Marketing Officer Valerie Morel told GenomeWeb.

The firm's premise is to simultaneously put genome analysis on the cloud and into the latest and fastest generation of supercomputers.

"We combine acceleration with distribution for increased speed and throughput," Moel said. She noted that the Smith-Waterman algorithm runs up to 15 times faster on Bluebee's platform than on Intel Xeon processors. "It's faster not only for one patient's genome, but we have throughput that makes big research faster," she said. "We can do much more at the same time."

Delft, Netherlands-based Bluebee is taking that promise of performance and pitching it to institutions generating loads of sequencing data. It has already signed the German Cancer Research Center as a customer and has plans to expand throughout Europe in the short term, and in the US and elsewhere in the long term.

The market for high-throughput genomic analysis is highly fragmented, with very different technologies or combinations of technologies available to choose from, and which are going in different directions. For example, the Broad Institute offers its Genome Analysis Tool Kit for download, and [Edico Genome](#) is integrating next-generation sequencing analysis algorithms directly into Intel chips.

To help get into the market, Bluebee, which is a spinout from Delft University of Technology and Imperial College London, recently [landed €1.8 million](#) (\$1.9 million) in financing from Buysse & Partners and Delft University of Technology.

The firm is different in several ways, Morel said. Bluebee's platform is cloud-based, driven by proprietary software that is designed to run on accelerated hardware, and offered as a service.

Accelerated hardware can allow one job to be run on multiple processors in parallel, improving processing speed; however, it requires software developed specifically for that type of computer. Software written for more conventional computers won't work on accelerated hardware. It's the

key to Bluebee's platform and what allows the firm to claim transparency and integrity in their services.

"There are a number of competitors that attack the problem differently, who write their own algorithms that are computationally faster [than peer-reviewed algorithms]," Morel said, essentially creating a black box for analysis. "That's not a path we chose," she said. Other competitors that use local computing or Amazon Web Services can't offer the speed and scalability at the same cost Bluebee can, Morel said.

Bluebee has a fully automated, standardized platform that connects sequencers directly to its supercomputing clusters run on the cloud. The firm also offers scientific advisory staff to help users customize the pipeline to suit their specific needs.

The firm's ability to offer an end-to-end pipeline for genomic data lies in what Morel called the "service connector," a piece of locally installed software that authenticates, secures, and compresses data before feeding it to Bluebee's platform.

As the data is being analyzed, users can log in to monitor progress, though the calculations trigger automatically once data is sent by the service connector. Once the analysis is complete, data is sent back through the service connector in the form of a VCF file for use with any interpretation software. Users can then share that data with other researchers or applications.

Accelerated hardware is the future for computationally intensive jobs such as genomic analysis, Morel said. To that end, Bluebee has joined the OpenPower consortium to work with hardware providers to understand the way their hardware is being developed and to shape the direction of that development.

Morel said Bluebee already has data centers in the US, Canada, Hong Kong, and Europe, which is important for compliance with local laws on healthcare data. With the product ready, Morel said the firm is concentrating on contracting with customers.

At the moment, the firm has a sales team of five that are focused on rolling out the services in Europe — focusing on Germany, France, the UK, and the Benelux region — with plans to launch in the US in 2016. Bluebee is targeting high-volume sequencing outfits in both research and clinical institutions as well as pharmaceutical R&D.

"Genomics data in clinical trials is a big area we're targeting," said Morel. "We find a strong interest on that side. In three to four years, we hope to have 5 to 10 percent of the market in those countries."

The sales team is pursuing a direct sales model, although Morel said the firm could offer its services through distributors or other third parties. She wouldn't disclose how much the services cost, but mentioned that the pricing is based per run, or on volume for larger clients.

Attracting the right clients at the right price will be key to the success of the company, which has few ties to academic bioinformatics. Founders Koen Bertels and Wayne Luk are computer engineering professors. CEO Hans Cobben has experience in telecommunications, and both he and CTO Kurt Florus have worked in financial services software.

But if Bluebee's combination of cloud-based services, accelerated hardware, user-friendly interface, and lock-down security features is as good as advertised, the firm could find itself as a fixture in genomic analysis.
